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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,556	06/25/2003	Jae-Wook Yu	2060-3-46	5471

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EXAMINER
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GESESSE, TILAHUN

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/603,556	<b>Applicant(s)</b> YU, JAE-WOOK	
	<b>Examiner</b> Tilahun B. Gesesse	<b>Art Unit</b> 2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 17-21 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 is/are allowed.
- 6) ☒ Claim(s) 1-14, 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### **Status of claims**

1. This is in response to applicant's amendment and argument May 2, 2006, in which claims 15-16 have been deleted and claims 1-14 and 17-21 are pending.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-14 and 17-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,5-6,10,13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ketchup in view of Kawasaki et al (US 5,896,563).

Claim 1. Ketchup teaches a transceiver of a terminal for use in a TDD-based mobile communication system (item # 24,26,28 of figure 3) (column 3, line 45-column 4, line 47 and figures 3 and 8) comprising:

Ketchup teaches a receiver for processing a reception signal in a reception mode (receiver 28 receives signals and process such as amplify and down converter to IF and input to base-band controller, see figure 3).

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Ketchup teaches a transmitter for processing a transmission signal in a transmission mode (base band output signal processed in the transmitter 26 and transmit to antenna to be radiated, see figure 3).

Ketchup teaches a switching mechanism operable in the transmission mode and the reception mode (the switch 24 of figure 3, switches received incoming signals to the receiver and transmit signals from transmitter 26).

Ketchup does not expressly teach ground divider and electric components of the switching mechanism are coupled to a common ground.

However, Kawasaki teaches ground divider and electric components of the switching mechanism are coupled to a common ground (see 4, line 51- col. 5, line 9 and figs. 1 and 2).

Both Ketchup and Kawasaki teach time division duplexing technique, then, it would have been obvious to an artisan of ordinary skill in the art the time of the invention was made to improve the system of Ketchup system by utilizing common ground at the switch mechanism for dividing the ground of the transceiver, as evidenced by Kawasaki, in order to prevent fluctuations of due to change of loss in transmission power, (see abstract)

Claim 5, Ketchup teaches the switching mechanism (24) an antenna a switch for selectively connecting the antenna to the receiver and the transmitter and a duplexer positioned between the antenna and the switch (see column 4, lines 1-21 and figures 3 and 8 where selectively transmit and receive based on strength of the signal).

Claim 6. Ketchup teaches a first ground separation element for isolating a receiver ground for the receiver and a common ground for the switching mechanism from each other and a second ground separation element for isolating a transmitter ground for the transmitter and the common ground (see column 4, lines 28-47 and figure 3, where the controller turns on and off the FET Q1 and Q2, accordingly to receive and transmit the switch signals to receiver and transmitter).

Claim 10. Ketchup teaches a method of data communication in a TDD-based mobile communication system item # 24,26,28 of figure 3) (column 3, line 45-column 4, line 47 and figures 3 and 8), the method comprising:

Kurchuk teaches processing a reception signal in a reception mode (receiver 28 receives signals and process such as amplify and down-converter to IF and input to base band controller, see figure 3)

Kurchuk teaches processing a transmission signal in a transmission mode (base band output signal processed in the transmitter 26 and transmit to antenna to be radiated, see figure 3) where in a switching mechanism operable in the transmission mode and the reception mode, (see column 4 lines 7-47 and figure 3).

Kurchuk does not expressly teach ground divider and electric components of the switching mechanism are coupled to a common ground.

However, Kawanami teaches ground divider and electric components of the switching mechanism are coupled to a common ground (see 4 , line 51- col. 5, line 9 and figs. 1 and 2). Both Kurchuk and Kawanami teach time division duplexing technique, then , it would have been obvious to an artisan of ordinary skill in the art the

time of the invention was made to improve the system of Kurchuk system by utilizing common ground at the switch mechanism for dividing the ground of the transceiver , as evidenced by Kawanami , in order to prevent fluctuations of due to change of loss in transmission power , (see abstract)

Claim 13 Kurchuk teaches the step of processing a transmission signal in a transmission mode further comprises isolating the transmitter from signal interference created by the switching mechanism (switch 24 includes power transistor (Q1 and Q2 turn on/off to divide signal between transmitter and receiver, see column 4 lines 7-47 and figure 3).

Claim 14 Kurchuk teaches the switching mechanism comprises an antenna a switch for selectively connecting the antenna to the receiver and the transmitter; and a duplexer positioned between the antenna and the switch (see item #15 antenna and switch 24 figure 3 and column 4, lines 1-21).

5. Claims, 2-4, 7,11-12,17,9,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurchuk and Kawanami in view of Sugawara (UK 2277650).

Claims 2-3, Kurchuk and Kawanami do not explicitly teach a reception filter for filtering the amplified reception signal and for providing the filtered reception signal to an intermediate frequency processor.

However, Jun Sugawara teaches a reception filter (29) for filtering the amplified reception signal and for providing the filtered reception signal to an intermediate

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frequency processor (30) (see figure 1, down-converted by the mixer and filter (30) and provided to detector ).

Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to modify Kurchuk and Kawanami system by using filter to remove unwanted or noise factor, as taught by Jun '650, in order to separate the signals transmit from transmitter and signals received by the receiver and the switch by that avoids from interfering signals and conserve power by turning off one of the transmitter or receiver.

Claim 4, Kurchuk teaches the transmitter further comprises an isolator for isolating the transmitter from signal interference created by the switching mechanism (column 4, lines 21-47).

Claims 7,17 Kurchuk and Kawanami do expressly teach the first and second ground separation elements is an inductor. However, 650 teaches inductor, see abstract and Item #5 of figure 2). It would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to modify Kurchuk switching system

Claims 9,20 Kurchuk teaches the switching mechanism (24) comprises an antenna (15) a duplexer connected to the antenna, the duplexer selecting transmission and reception frequency for sending the reception signal from the duplexer to the receiver and for sending the transmission signal from the transmitter to the antenna (see figure 3 and column 4, lines 1-47).

Kurchuk does not teach the antenna coupled to a circulator. However, '650 teaches an antenna coupled to a circulator by that divides the transmitter and receiver

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(see figure 1). Then, it would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to modify Kurchuk's system a circulator as distributing node, as taught by '650, in order to isolate the interfering signal or combat interference.

Claims 11-12, Kurchuk teaches the step of processing a reception signal in the reception mode comprises amplifying the reception signal provided by the switching mechanism, using a low-noise amplifier (see item # 60 of figure 3 a part of receiver 28) and providing the reception signal to an intermediate frequency ( as illustrated in figure 3, receiver 28, receives RF signal and mixed with oscillator, which down convert in to Intermediate frequency , which is also provided as base band signal).

Kurchuk does not explicitly teach filtering the amplified reception signal using a reception filter. However, '650, teaches band pass filter in the receiver circuit section (21) of figure 1). Then, it would have been obvious to an ordinary skill in the art at the time of the invention was made to filter the amplified reception signal for eliminating the unwanted bands from signal and passes the limited band using filter.

6. Claim 8, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurchuk and Kawanami in view of '650 as applied to claim 1-7, 9-17 and 19-20 above, and further in view of Howell (US 2002/00115435).

Claims 8 and 18-19, Kurchuk and '650 do not teach ground separation elements is a ferrite bead. However, Howell teaches ground separation elements is a ferrite bead (see figure 5). It would have been obvious to an artisan of ordinary skill in the art at the time of the invention was made to use ferrite bead as an isolating device.



***Allowable Subject Matter***

7. Claim 21 is allowed over the prior art of record. The following is an examiner's statement of reasons for allowance: the prior art does not teach the ground divider comprises: a first ground separation element for isolating the receiver pound from the common pound; and a second ground separation element for isolating the transmitter ground from the common ground.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

8. Applicant's arguments with respect to claim 1-14,17-20 have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tilahun B Gesesse whose telephone number is 571-272-7879. The examiner can normally be reached on flexible schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899.

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The Central FAX Number is 571-273-8300. For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
TILAHUN GESESSE  
PRIMARY EXAMINER